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## Unfolding Utzon

*addition and repetition*

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## UNFOLDING UTZON: ADDITION AND REPETITION

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For many, the architecture by Jørn Utzon is synonymous with the design of the Sydney Opera House (1973) that was made a UNESCO World Heritage Site in 2007, being one of the 20th century's most distinctive buildings and one of the most famous concert halls in the world.

*"It stands by itself as one of the indisputable masterpieces of human creativity, not only in the 20th century but in the history of humankind."*

[The UNESCO World Heritage Committee, 2007]

However, Utzon's architecture is more profound than the Sydney Opera House. Among other examples, his architecture includes the Melli Bank in Tehran (1962), Iran's National Bank (1963) and the National Assembly of Kuwait (1985) as the finest examples of Utzon's architecture where features of the traditional bazaar in the Middle East influenced his way of thinking and creating his modern form of architecture.

*"We had the idea of constructing the building around a central hall, a bazaar street, in such a way that all departments met in side roads off the bazaar road, just as we know from the bazaars in the Middle East and North Africa..."*

[Jørn Utzon]

Prior to these projects, Utzon designed his own house (1952) in Hellebæk, where he introduced 'the open plan' in Denmark inspired by his studies of Frank Lloyd Wright's houses. Careful consideration was given to the surroundings, especially the environmental factors such as sun, view and shelter from the wind.

*"What is important for me is that the architectonic approach or system behind a house should not limit the house's function and thereby hamper life inside"*

[Jørn Utzon]

This one-storey private home project was followed by Utzon's courtyard housing project, the Kingo Houses (1958) in Helsingør, a project with 63 L-shaped houses which can be seen as a prototype for the Fredensborg Houses (1963) consisting of 30 terraced houses with gardens and 47 L-shaped atrium houses form a three-winged estate. The materials chosen for the houses were tiles and wood, traditional Danish materials. Utzon originally called this concept for 'private life' due to the balance between the private space and the public areas organized for community life. Both of these two housing projects are based on Utzon's additive approach, starting modestly with one house followed by more houses, taking the landscape and its character into account. Utzon has talked about the layout of the houses as "flowers on the branch of a cherry tree, each turning towards the sun." This inspir-



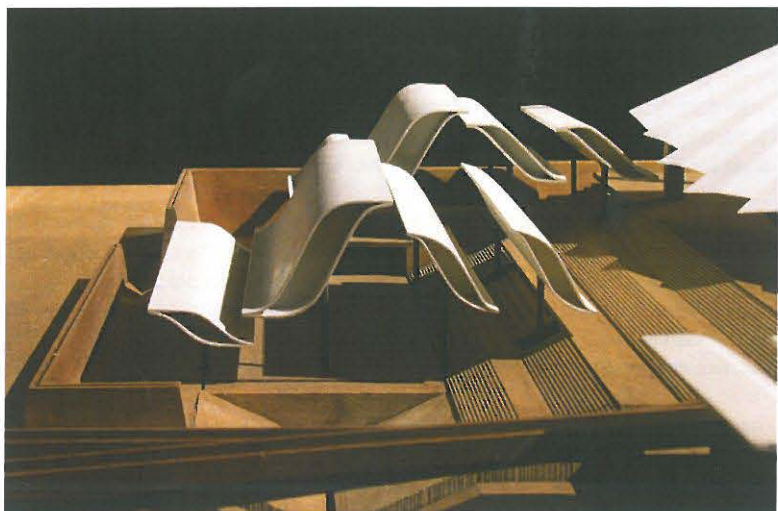
*Photo by Ole Haupt: The essence of Danish architect Jørn Utzon's architecture is a fusion of form and structure inspired by nature and the visual universe of other cultures.*

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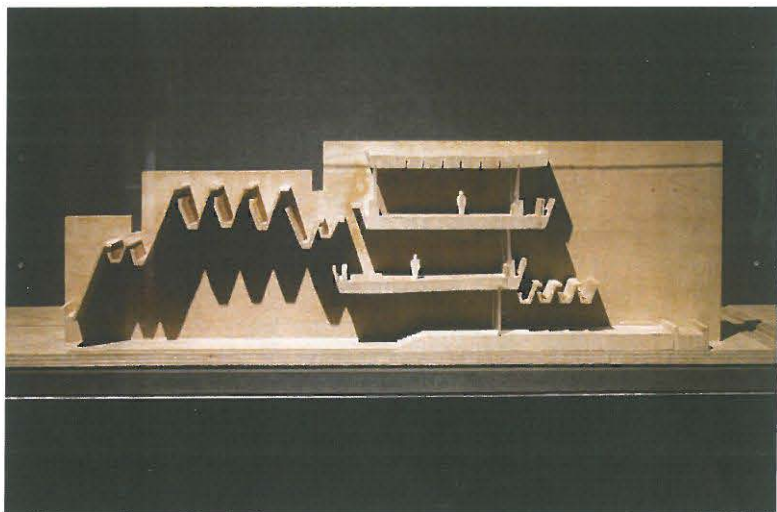
ation from nature for his additive approach is also outlined in the manifesto 'Additive Architecture' (1970) where he refers to examples from nature like 'a group of deer at the edge of a forest' and 'the pebbles on a beach'. The concept of additive architecture relies upon open-ended building systems of almost organic growth based on a limited number of prefabricated units. The application of the additive approach can be seen in many of Utzon's projects besides the housing projects. Examples are found in the proposals for the un-built projects like the Silkeborg Art Museum (1963), the Farum Town Centre (1966) and the proposal for a major sports center in Jeddah (1969). However, the flexible building system 'Espansiva approach' for low-cost housing, only build as a prototype, is, perhaps, the best and most well-known example. In addition to these projects, using the additive approach, the Bagsværd church (1977) and Paustian's furniture store (1987) should also be mentioned and of course Utzon's own houses Can Lis (1973) and Can Feliz (1994) at Mallorca and the furniture project Utsep (1968). Many of these projects include original approaches to variation and repetition. Due to Utzon's awareness on construction, the repetition of a component becomes the expedient by which complex geometrical and constructional problems can be rationally solved, as in the case of the shells of the Sydney Opera House, the beams in the National Assembly of Kuwait etc. The construction of a complex geometry is simplified and rationalized with a brilliant solution that allows to employ only a limited set of standard prefabricated components. The combination of prefabricated components in a structural assembly in such a way as to achieve a unified form that while incremental, is at once flexible, economic and organic. Conversely, the variation of a component is related to his refusal of reductionist approaches: in his design, he aimed to embrace the complexity and the multifarious. Therefore, a structural component can vary its shape and adapt to the states of stresses. Utzon also unfolded this understanding of additive components in his use of folded plates. For many of Utzon's projects, the roof is a variant on the folded-plate structures which fascinated him. Folded-plate structures were not in themselves unusual for the late sixties, however, Utzon had an ability to add layers of meaning without adding physically to the minimal structure. Utzon lifted well articulated folded-plate structures from a role as an ornament into a modern construction, returning it to the constructive purity of its tectonic origin. In the competition for the Madrid Opera House (1964), Utzon designed the roof as a variant on folded-plate structures and presented as almost to be in the process of unfolding. His fascination of folded structural elements was first introduced in the Melli Bank project where the lighting inside, through the roof, was inspired by the skylights in Isfahan's bazaar which Utzon previously had seen on one of his journeys. The roof is articulated with folded-plate beams of various depths, allowing the light to penetrate narrow openings before being diffused by deep V-shaped troughs. An approach Utzon later further developed for the Bagsværd church project.

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*Photo Seier+Seier Jørn Utzons, Madrid Opera House proposal*



*Photo Seier+Seier: Model for the Interior of the Melli Bank*